Welcome to the **MARCH** edition of the WDFW Climate News Digest. Here you will find highlights of climate change news, events and resources for WDFW staff. Feedback or suggestions for items to include in future editions are much appreciated – thanks to those who have sent links and references and please keep them coming. We are particularly interested in projects or issues you may be involved in which have (or should have) a climate change component. Thanks and Happy Spring!

WHAT'S HAPPENING AT WDFW?

Selected projects, agency resources and initiatives

Climate Sensitivity Focus Group for Freshwater and Riparian Habitats

WDFW, the National Wildlife Federation and the UW are collaborating on a series of workshops to assess the climate sensitivity of several habitat types in Washington. Workshops have thus far been held for Forests, Arid Lands and Marine and Coastal systems. The last scheduled focus group will address Freshwater and Riparian systems and is scheduled for May 7th in Tacoma. The workshop goal is to assemble experts in freshwater habitats to document relative sensitivity to projected climate impacts. Results from all workshops are being assembled by University of Washington staff and should be available by early summer. Please be in touch with Lynn if you have not yet been contacted and are interested in participating in this focus group.

Seattle Times Editorial on Climate Change Effects on Fish and Wildlife

In an earlier edition of the Climate News, we reported on an initiative of the Theodore Roosevelt Conservation Partnership (TCRP) to develop and deliver Climate Change presentations to sportsmen groups. Bill Geer of TRCP worked with WDFW staff to create a narrated DVD, "Beyond Seasons End – Washington", which overviews how climate change will impact opportunities for fishers and hunters. In addition to visiting sportsmen clubs across Washington, he recently published an editorial in the Seattle Times, "Address climate change with science, not opinion polls".

For a copy of the DVD, please contact Lynn.

NEWS AND RESOURCES

Handy "Cheat Sheet" on Projected Climate Impacts for the Pacific Northwest

The Climate Impacts Group recently posted a table which provides a quick summary of several of the climate change projections for the Pacific Northwest, as published in the 2009 Washington Climate Change Impacts Assessment (WACCIA). The 11 page document highlights projected changes in temperature, precipitation, snowpack, streamflow volume, sea level, coastal upwelling, ocean acidification and more.

http://cses.washington.edu/cig/files/climatedriverssummary.pdf

For more on the WACCIA, please see visit the Climate Impacts Group website.

USFS Climate Change Resource Center Adds New Paper on Biodiversity and Climate Change

A newly updated CCRC Topic Page explores the subject of Biodiversity. The page outlines how climate change is affecting biodiversity and by extension ecosystem processes and functions. It also discusses general management strategies for maintaining biodiversity under uncertain future climates. Each Topic Page provides a summary on an issue in addition to related reading, web resources, and research in the subject area.

NASA Finds 2011 Ninth Warmest Year on Record

The global average surface temperature in 2011 was the ninth warmest since 1880, according to NASA scientists. The finding continues a trend in which nine of the 10 warmest years in the modern meteorological record have occurred since the year 2000. NASA's Goddard Institute for Space Studies (GISS) in New York, which monitors global surface temperatures on an ongoing basis, released an updated analysis that shows temperatures around the globe in 2011 compared to the average global temperature from the mid-20th century. The comparison shows how Earth continues to experience warmer temperatures than several decades ago. The average temperature around the globe in 2011 was 0.92°F (0.51°C) warmer than the mid-20th century baseline. ***ANIMATION of temperature data from 1880 to 2011:***
http://www.giss.nasa.gov/research/news/20120119/

In this animation, reds indicate temperatures higher than the average during a baseline period of 1951-1980, while blues indicate lower temperatures than the baseline average. (Data source: NASA Goddard Institute for Space Studies. Visualization credit: NASA Goddard Space Flight Center Scientific Visualization Studio)

CLIMATE SCIENCE

Increases in the intensity of future extreme winter precipitation are projected for the western United States

Researchers simulated precipitation events using an ensemble of eight regional climate models. All eight simulations consistently show an increase in the intensity of extreme winter precipitation with the multi-model mean projecting an area-averaged 12.6% increase in 20-year return period and 14.4% increase in 50-year return period daily precipitation. *Changes in winter precipitation extremes for the western United States under a warmer climate as simulated by regional climate models*. GRL publication are not readily available without subscription, but a similar version appears to have been provided by PNAS (proceedings of the national academy of sciences): http://www.atmo.arizona.edu/~castro/Reviewedpubs/R-20.pdf

Northwest Glaciers and Climate Change

The glaciers in the North Olympic Peninsula's national park have shrunk by an average of 15 percent of their mass since the 1980s. Ferry Glacier, which was one of the 60 largest glaciers in the park in 1982, has disappeared completely from its rocky niche in the Bailey Range, while another glacier, Lillian, has virtually disappeared. Researchers say the Olympic mountain range is losing glacier mass at a rate of a meter of ice per year.
http://www.nps.gov/olym/naturescience/glaciers.htm

Research Finds Substantial Losses in Mount Adams Glacial Mass
A new study by researchers at Portland State University provides the first-ever assessment of changes in glacial extent on Mount Adams (WA), finding that glacier area decreased by 49% during the period from 1904 to 2006. *Read more.*

POLICY AND MANAGEMENT

Describing a Climate Adaptation Framework for Resource Managers
Recognizing a need for clarity within the magnitude and diversity of models and data that can be applied to climate impact analyses and adaptation strategies, the Yale School of Forestry and Environmental Sciences recently convened a working group of the nation's leading conservation biologists to develop a guidance tool for integrating adaptation strategies into the context of natural resource planning. The tool, The Yale Mapping Framework (www.databasin.org/yale), assists resource managers in selecting the assessment and modeling strategies that are most relevant to their specific needs, helping to guide choices among the many tools, data, and methods that planners may use to implement their adaptation approaches in the face of a changing climate. The Framework is currently being tested in several pilot projects around the country.

Why is the Number 350 Significant in Understanding Climate Change?
The answer is that 350 ppm is believed by many scientists to be the safe upper limit for carbon dioxide in our atmosphere. When atmospheric concentrations of carbon dioxide are above 350 ppm global warming would be dangerously out of control, according to NASA scientist Jim Hansen. In this paper, Hansen and his team assert the following: *If humanity wishes to preserve a planet similar to that on which civilization developed and to which life on Earth is adapted, paleoclimate evidence and ongoing climate change suggest that CO2 will need to be reduced from its current 385 ppm to at most 350 ppm.* Currently, our magic number for earth is rising about 2 ppm annually. For more information, visit NASA's website.

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